REMARKS

[0001]   Claims 1, 3-9, and 11-18 are pending in the application.

[0002]   Claims 1, 9, 11-15, 17, and 18 are currently amended. Applicants respectfully submit that no new matter is added to currently amended claims 1, 9, 11-15, 17, and 18.

[0003]   Claims 1, 3-9, and 11-18 stand rejected under 35 U.S.C. §112, second paragraph.

[0004]   Claims 1, 4-7, 9, and 12-17 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent Application Publication No. 2004/0015386 to Abe.

[0005]   Claims 3, 11, and 18 stand rejected under 35 U.S.C. §103(a) as unpatentable over Abe, in view of U.S. Patent No. 6,125,339 to Reiser et al., hereinafter, Reiser.

[0006]   Applicants respectfully traverse these rejections based on the following discussion.

I.   The 35 U.S.C. §112, Second Paragraph, Rejection

[0007]   Claims 1, 3-9, and 11-18 stand rejected under 35 U.S.C. §112, second paragraph.

[0008]   It is a fact that the Office Action, mailed October 30, 2008, states, "The independent claims mention customer activities across multiple channels upon which promotions are targeted and delivered, however, it is unclear how a one-way channel such as a catalog or directed marketing piece can be used this way." (Office Action, page 3, first paragraph).

[0009]   Applicants respectfully submit that the Office Action has read limitations into the independent claims that do not exist.

[0010]   It is a fact that independent claims 1 and 17 state in relevant part, "… receiving a request from said customer from one of said multiple channels; … and sending, by said computer, both a reply to said request and said channel-specific promotion to said customer".

[0011]   It is a fact that independent claim 5 similarly states in relevant part, "… an input/output interface for receiving a request from said customer from one of said multiple channels; … a processor configured to: … send both a reply to said request and said channel-specific promotion to said customer".

[0012]   Applicants respectfully submit that the independent claims clearly describe, receiving a request from the customer from one of the multiple channels, and sending a reply to the customer. (emphases added). Applicants further respectfully submit that the independent claims do not impose the limitation of multiple channels constituting one-way channels, as suggested by the Office Action. The present invention may *inter alia* receive a customer request and send a reply via the same channel, e.g., on on-line computer.

[0013]   For at least the reasons outlined above, Applicants respectfully submit that independent claims 1, 9, and 17, and dependent claims 3-8, 11-16, and 18, particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Therefore, Applicants further respectfully submit that claims 1, 3-9, and 11-18 fulfill the statutory requirements of 35 U.S.C. §112, second paragraph. Withdrawal of the rejection of claims 1, 3-9, and 11-18 is respectfully solicited.

II.   **The Prior Art Rejections**

      A.   **The 35 U.S.C. 102(b) Rejection over Abe**

            1.   **The Abe Disclosure**

[0014]   It is a fact that Abe discloses, "A system and method for sequential decision-making for customer relationship management includes providing customer data including stimulus-response history data, and automatically generating actionable rules based on the customer data. Further, automatically generating actionable rules may include estimating a value function using reinforcement learning." (Abstract).

[0015]   It is a fact that Abe discloses, "The present invention includes an inventive method for sequential decision making (e.g., sequential cost-sensitive decision making) for customer relationship management. The inventive method includes providing customer data (e.g., consumer data, client data, donor data, etc.) comprising stimulus-response history data, and automatically generating actionable rules based on the customer data. Further, automatically generating actionable rules may include estimating a value function using reinforcement learning (e.g., reinforcement learning and dynamic programming). ... ." (Paragraph [0014]).

[0016] It is a fact that Abe discloses, "Further, the inventive method may be applied to cross-channel optimized marketing (CCOM). For example, the inventive method may include providing customer data including stimulus-response history data from a plurality of channels (e.g., "multiple" channels), integrating the customer data, and automatically generating channel specific actionable rules based on the customer data. For instance, in this case the method may optimize (e.g., nearly optimize) cross-channel cumulative profits." (Paragraph [0019]).

[0017] It is a fact that Abe discloses, "Targeted marketing has traditionally been done most often in the channel of direct mailing. Recent development and prevalence of IT based marketing has widened this common practice to a variety of additional channels, including the Internet, the kiosk, the wireless, the store, and the call center. In this renewed, so-called "cross-channel" retail setting, it is even more important to consider the optimization of sequences of marketing actions, as now the actions are not only taken at different points in time, but also across different channels over time." (Paragraph [0179]).

[0018] It is a fact that Abe discloses, "FIG. 24 illustrates one possible infrastructure for the present invention including CCOM. For example, in this example, the channels include the web, kiosk, direct mail, a call center, and a store. The rules from the customer relationship management (CRM) rule base are applied to operational transactions to transform into customer profiles (e.g., operational and historical) at a point in time. The customer lifetime value is modeled to predict customer behavior. These models are transformed into situation-action rules which may be used to update the CRM rule base." (Paragraph [0197]).

[0019] It is a fact that Abe discloses, "Batch Reinforcement Learning with Function Approximation [:] In the foregoing description of reinforcement learning, two simplifying assumptions were made that are not satisfied in the current setting. The first assumption is that the problem space consists of a reasonably small number of atomic states and actions. ... In many practical applications, including targeted marketing, it is natural to treat the state space as a feature space with a large number of both categorical and real-valued features. In such cases, the state space is prohibitively large to represent explicitly, which renders the above methods impractical." (Paragraphs [0096]-[0097]).

[0020]　It is a fact that Abe discloses, "The second assumption that was made is the availability of online interaction with the environment. In applications like targeted marketing, this situation is typically not the case. In fact, it is quite the opposite. In targeted marketing, one usually has access to a very large amount of data accumulated from past transaction history from which an effective targeting strategy is to be derived. Moreover, the targeting strategy (i.e., the policy) must make simultaneous decisions for an entire population of customers, [not] one customer at a time. Online learning of policies, via reinforcement learning or otherwise, is not practical under these circumstances." (Paragraph [0098]).

[0021]　It is a fact that Abe discloses, "Bearing these factors in mind, the inventors propose to use so-called batch reinforcement learning methods with function approximation. Batch reinforcement learning refers to a form of reinforcement learning in which the learning does not take place in an online fashion as the learner performs actions and the environment traverses states. Instead, batch learning makes use of a potentially large volume of static training data that represents prior experience. The training data consists of sequences of states, actions, and resulting rewards. Batch learning thus reflects the realities of certain real-world applications like targeted marketing." (Paragraph [0099]).

2.　Argument

[0022]　Abe discloses a system and method for sequential decision-making for customer relationship management that includes providing customer data including stimulus-response history data, and automatically generating actionable rules based on the customer data, in which automatically generating actionable rules may include estimating a value function using reinforcement learning. (Abstract).

[0023]　Abe also discloses that generating the actionable rules, which result from reinforcement learning, does not take place in an online fashion (Paragraph [0099]), because (1) the prohibitively large state space for many customers over periods of time renders targeted marketing impractical (Paragraphs [0096]-[0097]), and (2) online learning of policies, via reinforcement learning, is not practical for large populations of customers and their transaction histories (Paragraph [0098]). To solve these problems, Abe proposes a so-called batch

reinforcement learning methods with function approximation, in which the learning does not take place in an online fashion as the learner performs actions and the environment traverses states (Paragraph [0099]). Hence, Abe does not respond with targeted marketing to every request or transaction by a customer.

[0024] In contrast, the present invention clearly claims at least the features of: "receiving a request from said customer from one of said multiple channels; ... updating said integrated belief profile, based on said stored belief values of said customer, before executing said request; executing said request; simultaneously, with said executing of said request, generating a channel-specific promotion based on said updated integrated belief profile", as recited in independent claims 1 and 17, and similarly recited in claim 9. (emphases added). That is, upon receiving a request, the present invention, in an online manner, updates the integrated belief profile (which is analogous to Abe's reinforcement learning). (emphasis added).

[0025] For at least the reasons outlined above, Applicants respectfully submit that not only does Abe not disclose, teach or suggest at least the present invention's features of: receiving a request from said customer from one of said multiple channels; ... updating said integrated belief profile, based on said stored belief values of said customer, before executing said request; executing said request; simultaneously, with said executing of said request, generating a channel-specific promotion based on said updated integrated belief profile", as recited in currently amended, independent claims 1 and 17, and as similarly recited in currently amended, independent claim 9, but that Abe teaches away from the present invention by use of so-called batch reinforcement learning methods with function approximation, in which the learning does not take place in an online fashion as the learner performs actions and the environment traverses states (Paragraph [0099]). Accordingly, Abe fails to anticipate the subject matter of currently amended, independent claims 1, 9, and 17, and dependent claims 4-7, and 12-16 under 35 U.S.C. §102(b). Withdrawal of the rejection of claims 1, 4-7, 9, and 12-17 under 35 U.S.C. §102(b) as anticipated by Abe is respectfully solicited.

B.   The 35 U.S.C. 103(a) Rejection over Abe and Reiser

1.   The Reiser Disclosure

[0026]   It is a fact that Reiser discloses, "The present invention provides a method for automatically learning belief functions, thus providing the ability to determine erroneous information sources, inappropriate information combinations, and optimal information granularities, along with enhanced system performance. The present invention may be embodied in a method of training belief functions, including the steps of gathering information representative of an object or event; creating a set of basic probability assignments based on said set of information; creating combinations of said basic probability assignments; measuring an error present in said basic probability assignments and said combinations of basic probability assignments; calculating updates of said basic probability assignments and said combinations of basic probability assignments based on said error; and modifying said basic probability assignments and said combinations of basic probability assignments with said updates." (col. 2, lines 6-22).

[0027]   It is a fact that Reiser discloses, "As shown in FIG. 2, at block 100 the method polls the information sources 20 to extract information. The extracted information will be used to generate a belief function, or bpa. The output of each information source 20 is representative of an observation, a rule, an opinion, or some other measurable phenomenon. The polling of the information source 20 is no different for supervised or unsupervised learning methods. Block 110 performs the function of gathering the information reported by the information sources 20, processing the information into bpa's, and combining the sensor bpa's in a predetermined fashion. For example, the bpa .mu..sub.1 may be based on object shape. A second set of information sources 20, used to produce .mu..sub.2 may be based on object size, while a third bpa .mu..sub.3 may be based on the heat associated with the object. By combining the three bpa's (.mu..sub.1, .mu..sub.2, .mu..sub.3) via Dempster's rule of combination, which is well known in the art, a fourth bpa (.mu..sub.o) is created. This new bpa provides more information as to the identity of object being observed." (col. 3, lines 10-30).

2. Argument

[0028]   Reiser does not cure the deficiencies of Abe argued above.

[0029]   Resier merely discloses combining belief function via Dempster' rule of combination while automatically learning belief functions. (col. 2, lines 6-22 and col. 3, lines 10-30).

[0030]   Nowhere does Reiser disclose, teach or suggest at least the present invention's features of: receiving a request from said customer from one of said multiple channels; … updating said integrated belief profile, based on said stored belief values of said customer, before executing said request; executing said request; simultaneously, with said executing of said request, generating a channel-specific promotion based on said updated integrated belief profile", as recited in currently amended, independent claims 1 and 17, and as similarly recited in currently amended, independent claim 9.

[0031]   Instead, Reiser merely discloses combining belief function via Dempster' rule of combination while automatically learning belief functions. (col. 2, lines 6-22 and col. 3, lines 10-30).

[0032]   For at least the reasons outline above with respect to the rejection of the claims over Abe, and for at least the reasons outlined above with respect to the rejection of the claims over Reiser, Applicants respectfully submit that Abe and Reiser, either individually or in combination, do not disclose, teach or suggest at least the present invention's features of: receiving a request from said customer from one of said multiple channels; … updating said integrated belief profile, based on said stored belief values of said customer, before executing said request; executing said request; simultaneously, with said executing of said request, generating a channel-specific promotion based on said updated integrated belief profile", as recited in currently amended, independent claims 1 and 17, and as similarly recited in currently amended, independent claim 9. Accordingly, Abe and Reiser, either individually or in combination, fail to render obvious the subject matter of currently amended, independent claims 1, 9, and 17, and dependent claims 3, 11, and 18 under 35 U.S.C. §103(a). Withdrawal of the rejection of claims 3, 11, and 18 under 35 U.S.C. §102(b) as unpatentable over Abe and Reiser is respectfully solicited.

III.   Formal Matters and Conclusion

Claims 1, 3-9, and 11-18 are pending in the application.

Applicants respectfully submit that the present claims fulfill the statutory requirements of 35 U.S.C. §112, second paragraph.

With respect to the rejections of the claims over the cited prior art, Applicants respectfully argue that the present claims are distinguishable over the prior art of record. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims.

In view of the foregoing, Applicants submit that claims 1, 3-9, and 11-18, all the claims presently pending in the application, are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest time possible.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

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